

CLAIMS:

No claim amendments are herewith proposed, and the following list of claims is provided simply for the convenience of the Examiner.

The Claims:

1. (Previously Presented) A method, comprising:

receiving at a first network element in a communications network a first message from a user equipment;

transmitting the first message from the first network element to a serving network element;

detecting at the first network element that the serving network element is out of service;

determining at the first network element a type of the first message, wherein determining the type of the first message comprises evaluating content of a predefined information element in the first message;

in response to detecting at the first network element that the serving network element is out of service and to determining that the type of the first message is a re-registration request, sending from the first network element to the user equipment an error message including an indication that the serving network element is out of service; and

subsequent to sending the error message to the user equipment, receiving a second message having an initial registration type from the user equipment.

2. (Canceled).

3. (Previously Presented) A method according to claim 1, wherein the second message is configured to initiate a registration from the user equipment to the first network element.

4. (Previously Presented) A method according to claim 1, wherein a bearer configured to signal is established between the user equipment and the communications network prior to the receiving of the first message.

5. (Previously Presented) A method according to claim 4, further comprising forwarding the first message to a further serving network element.

6. (Previously Presented) A method according to claim 5, wherein the further serving network element registers the user equipment.

7. (Previously Presented) A method according to claim 4, wherein the bearer comprises a signalling or general purpose packet data protocol context bearer.

8. (Previously Presented) A method according to claim 1 wherein the communications network is an internet protocol multimedia subsystem network.

9. (Previously Presented) A method according to claim 1 wherein the first network element comprises an interrogating call session control function.

10. (Previously Presented) A method according to the claim 1, wherein the first network element comprises a proxy call session control function.

11. (Previously Presented) A method according to claim 1 wherein the serving network element comprises a serving call session control function.

12. (Canceled).

13. (Previously Presented) A method according to claim 1, wherein the detecting at the first network element that the serving network element is out of service comprises:

at least one of detecting that a predetermined time period has passed since the forwarding of the message from the first network element to the serving network element and before a response has been received from the serving network element, and determining that the first message has been transmitted a predetermined number of times.

14-15. (Canceled).

16. (Previously Presented) A method according to claim 1, wherein the information element indicates that the first message is sent integrity protected.

17. (Previously Presented) A method according to claim 1, wherein the information element indicates that a user has been successfully authenticated.

18. (Previously Presented) A method according to claim 1, wherein the information element in the first message is an integrity protected flag in an authorization header of the first message.

19. (Previously Presented) An apparatus, comprising:
a controller configured to
receive a first message from a user equipment,
forward the first message to a serving network element,
detect that the serving network element is out of service,
determine a type of the first message by evaluating content of a predefined information element in the first message,
in response to detecting at the first network element that the serving network element is out of service and to determining that the type of the first message is a re-registration request, send an error message to the user equipment including an indication that the serving network element is out of service, and
subsequent to the error message being sent to the user equipment, receive a second message having an initial registration type from the user equipment.

20. (Canceled).

21. (Previously Presented) An apparatus, comprising:
a controller configured to
send a first message having a type of a re-registration request;

receive an error message from a network element in a communications network in response to the first message, the error message indicating that a serving network element for the apparatus is out of service, and

in response to the error message, to send a further message having an initial registration type to the network element.

22. (Previously Presented) An apparatus according to claim 21, wherein the controller is further configured to

establish a bearer configured to signal between the apparatus and a communications network comprising said network element and said serving network element, and

respond to the error message by dropping the bearer between the apparatus and the communications network.

23. (Previously Presented) An apparatus according to claim 22 wherein the bearer comprises a signalling or general purpose packet data protocol context bearer.

24-33. (Canceled).

34. (Previously Presented) A system, comprising:

a network element;

a serving network element in communication with the network element; and

user equipment in communication with said network element,

wherein said network element is configured to

receive a first message from the user equipment,

forward the first message to the serving network element,

detect that the serving network element is out of service,

determine a type of the first message by evaluating content of a predefined information element in the first message,

in response to detecting that the serving network element is out of service and to determining that the type of the first message is a re-registration request, send an error

message to the user equipment including an indication that the serving network element is out of service, and

subsequent to sending the error message to the user equipment, receive a second message from the user equipment having an initial registration type.

35-38. (Canceled).

39. (Previously Presented) A method comprising:

sending from a user equipment a first message having a type of a re-registration request;
receiving at the user equipment an error message from a network element in a communications network in response to the first message, the error message indication that a serving network element for the user equipment is out of service; and

in response to the error message, sending from the user equipment a further message having an initial registration type to the network element.

40-43. (Canceled).

44. (Previously Presented) A non-transitory computer readable medium configured to store instructions of a computer program that when executed controls a controller to perform:

receiving at a first network element in a communications network a first message from a user equipment;

transmitting the first message from the first network element to a serving network element;

detecting at the first network element that the serving network element is out of service;

determining at the first network element a type of the first message by evaluating content of a predefined information element in the first message;

in response to detecting at the first network element that the serving network element is out of service and to determining that the type of the first message is a re-registration request, sending from the first network element to the user equipment an error message including an indication that the serving network element is out of service; and

subsequent to sending the error message to the user equipment, receiving a second message having an initial registration type from the user equipment.

45. (Canceled).

46. (Previously Presented) An apparatus according to claim 19, wherein the controller is further configured, detect that the serving network element is out of service, to detect that a predetermined time period has passed since the forwarding of the message from the apparatus to the serving network element and before a response has been received from the serving network element and/or determining that the first message has been transmitted a predetermined number of times.

47. (Previously Presented) A non-transitory computer readable medium configured to store instructions of a computer program that when executed controls a controller to perform:

 sending from a user equipment a first message having a type of a re-registration request;
 receiving at the user equipment an error message from a network element in a communications network in response to the first message, the error message indication that a serving network element for the user equipment is out of service; and

 in response to the error message, sending from the user equipment a further message having an initial registration type.